

Kinetic studies and properties of potato apyrase

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Apyrase from potato extracts has been purified 200-fold by two different procedures; both procedures furnish an apyrase which splits ATP faster than ADP. By using P³²-labeled substrates, it was possible to demonstrate that ATP is a competitive inhibitor of ADP hydrolysis; K_m and K_i values have been determined with these substrates. During the hydrolysis of the γ-phosphoryl group of ATP by apyrase, there is a small but detectable hydrolysis of the γ-phosphoryl group. The results from inactivation with γ-rays and sucrose gradient sedimentation are consistent with the assumption that ATPase and ADPase activities are present in the same protein. They also suggest the existence of an active unit that may aggregate into larger molecules. This may explain the finding of more than one apyrase reported in the literature. © 1965.